Nutrition News

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NUTRITION IN OUR CHANGING WAYS OF LIFE

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In preoccupation with daily problems, not only the housewife but the nutritionist, teacher, and the physician may lose sight of two crucial facts: 1) in shopping for food, everyone is participating in a revolutionary enterprise in our way of life; 2) at each mealtime, the food served and eaten influences each person's health, happiness and length of life.

The science of nutrition, though young, has made great strides. It promises greater ones still with the use of radio isotopes and the electron microscope. Fortunately, newer knowledge of nutrition has paralleled a rising income and a more equitably distributed purchasing power. These factors combine to influence our agriculture and food processing techniques, and contribute to shifts in our dietary habits and in our food economy.

Fundamentally however, food, aside from satisfying hunger, furnishes three things: 1) fuel for heat and energy; 2) structural materials for growth, upkeep, and renewal of body tissues; 3) substances regulating and maintaining bodily processes. These physiological facts are not changed even though we change our ways of life.

Within the past half-century our population has about doubled, but the number over sixty years of age has quadrupled. There is little point in prolonging life without maintaining as much health and mental vigor as possible. Despite many gaps in nutritional knowledge about the aging process, there is mounting evidence of the importance of nutrition on the effects of this process. The belief that older people should reduce food intake points up a need for high nutritive quality in their food.

With progressive mechanization in our lives, many people of all ages have greatly reduced the use of muscles. It is estimated that average work output has dropped from about 3,500 calories a day to about 2,500. The need for proteins, vitamins, and minerals is almost as great when doing light, as moderately heavy work. It is evident under these circumstances, that one requires a food intake higher in proteins, minerals, and vitamins, while lower in calories, in order to maintain a comparable level of health.

As food sources have moved farther from consumers, processing technology has become increasingly important in sustaining nutritive values of foods. Enrichment of bread and flour, canning processes, and the phenominal growth of the frozen food industry raise the quality of our diet, as does our increased consumption of milk, vegetables, and fruits.

A few years ago the Department of Agriculture reported a more than forty-five percent increase in per capita food expenditure, resulting in a major redistribution of our food supply. It enabled many families to use more meat, milk, eggs, fruits, and vegetables. It also stimulated production of an almost bewildering array of new products, which complicate the factor of choice.

Improved eating habits do not necessarily follow increased income. Eating habits are entangled in psychological attitudes, personal likes and dislikes, racial and religious customs, as well as economic factors. It may be that the most effective way to circumvent obstacles to improvement in nutrition in our changing times, is to concentrate on nutritional education of children in the schools.

Two widely divergent experiments in Boston and Ithaca, New York, offer a challenging glimpse into the possibilities of improving health and prolonging life through proper nutrition. A study at the Boston Lying-In Hospital has produced evidence that a good maternal diet during pregnancy not only affects the course of pregnancy and delivery, but influences the health of the infant.

The second study at Cornell University suggested that the secret of a

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vigorous and long life may lie in a diet which is low in high calorie starches, fats, and sugars but high in minerals, vitamins, and some proteins. It was further indicated that in order to extend the prime of life and postpone the degenerative processes of aging, such a diet must be instituted in early childhood and be constantly maintained. While the Cornell experiments were conducted with laboratory animals, many findings in the prevention of disease have stemmed from work with animals.

Length of life is determined by many variables, including heredity, mode of living, and the sequence of disease from the time of birth. It is increasingly apparent, however, that the chemistry of food within the body is possibly the most important factor of all. It is possible that slight dietary faults build up over the years and contribute toward serious physiologic disorders which have their inception long before clinical symptoms can be detected.

The science of nutrition is arming mankind with a mighty weapon of preventive medicine. Medical schools and physicians need increasing awareness and application of the knowledge provided by progress in this science.

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Glances AT NUTRITION RESEARCH

Human need for protein is primarily dependent upon the amino acid requirement of the individual. Studies are being made to determine this requirement for young women under controlled dietary conditions.

Requirement for threonine—Daily intake of 310 mg. of threonine has been tentatively established as the minimum daily requirement of normal young women for this amino acid. This amount of threonine was sufficient to maintain nitrogen equilibrium in 19 young women fed a controlled semi-purified diet with varying levels of threonine and with other amino acids provided in varying amounts above estimated requirements. Different subjects required from 103 to 305 mg. of threonine daily; on a weight basis, 4.5 to 14.9 mg./kg.[1]/day.

—J. Nutrition 58:59 (Jan.) 1956.

Requirement for valine—Daily intake of 650 mg. of valine is suggested as a minimum dietary requirement of young women for this nutrient. For 15 young women studied, nitrogen equilibrium was maintained on a daily valine intake varying from 20.4 mg./kg.[1]/day for the largest subject to 36.7 mg./kg.[1]/day for the smallest girl.

—J. Nutrition 58:83 (Jan.) 1956.

Requirement for tryptophan—Daily intake of 160 mg. of tryptophan has been suggested as a tentative minimum dietary requirement for normal young women. Nitrogen equilibrium was maintained by 15 young women on intakes of 82 to 157 mg. of tryptophan per day; 4.0 to 7.9 mg./kg.[1]/day.

—J. Nutrition 58:219 (Feb.) 1956.

Requirement for phenylalanine—Daily intake of 220 mg. of phenylalanine is suggested as a tentative minimum dietary requirement of young women. Nitrogen equilibrium was maintained by young women on phenylalanine intakes of 5.6 to 12.3 mg./kg.[1]/day. Tyrosine levels were varied but no quantitative relationship was established between these two amino acids.

—J. Nutrition 58:341 (March) 1956.

Requirement for leucine—Daily intake of 620 mg. of L-leucine has been suggested as a minimum dietary requirement for young women to maintain nitrogen equilibrium. Twelve young women tested showed a variable requirement between 170 and 710 mg. of leucine daily; or 8.2 to 34.3 mg./kg.[1]/day.

—J. Nutrition 58:355 (March) 1956.

Requirements for cystine-methionine—A daily intake of 550 mg. of the sulfur-containing amino acids, cystine-methionine, maintained 8 healthy young women in nitrogen balance although 5 subjects required 350 mg. or less.

—J. Nutrition 58:495 (April) 1956.

Requirement for isoleucine—Daily intake of 450 mg. of isoleucine maintained 7 healthy young women in nitrogen balance with a range of 250-450 mg. needed by the different subjects.

—J. Nutrition 58:507 (April) 1956.

Dr. Henry J. Bakst

Dr. Bakst is professor of preventive medicine and chairman of the department, School of Medicine of Boston University. He is also chief of rehabilitation and physical medicine, Massachusetts Memorial Hospitals. A part of his time is devoted to serving as chairman of the Health Council, Boston Community Services. He is a member of the Public Health Committee of the state Medical Society and president of the Massachusetts Association for Mental Health. A graduate of Brown University and Harvard Medical School, Dr. Bakst is a fellow of the American College of Physicians and American Public Health Association.

Irradiated Foods

Nuclear irradiation of food that would eliminate refrigeration will not be realized in the immediate future, states Dr. Leonard Reiffel, Armour Research Foundation. Radiation pasteurization, which kills most but not all bacteria, may be more likely. This process requires less radiation, does not alter food quality and prolongs refrigerated storage life.

Crusade Against Hunger

Through the Food Crusade, CARE distributes millions of pounds of dry milk, beans, butter, cheese and other nutritious foods to areas where hunger is acute. A single package sent overseas for only one dollar contains 22 pounds of food and supplements the diet of a family of four for a month with the equivalent of 20 quarts of milk, 5 pounds of cheese and other concentrated foods.

PRACTICAL NUTRITION FOR MEDICAL STUDENTS

By Margaret G. Phillips, M.S., Nutrition Instructor, School of Nursing, Massachusetts Memorial Hospitals, and Boston University School of Medicine.

Many educators feel that the science of nutrition receives too little consideration in the education of physicians and in the general practice of medicine. Most second year medical students can give a learned discourse on the intermediate metabolism of fat, but cannot evaluate the fat content of a patient's diet. Seldom can they judge the nutritional adequacy of diets. Dietary advice by a medical student, intern, or sometimes even a practicing physician may be generalizations such as: "don't eat any bread"; "omit potatoes." This kind of advice may result in an unbalanced diet and confuse the patient. What **not** to eat has been stressed with little guidance offered on what **to** eat.

The medical student's knowledge of food metabolism and his awareness of the importance of nutrition, except in general terms, may grow dim. Feeling less confident in nutrition, he is apt to give it little attention and may overlook diet inadequacies. Boston University uses a program centered around pregnancy, infancy and childhood to strengthen the medical student's knowledge of nutrition.

Fourth-year medical students are assigned patients who are in the last month of pregnancy, and are required to observe and follow them for four months through the delivery and postnatal period. This experience includes evaluation of the patient's nutritional status, based on physical signs and symptoms and a complete nutritional history. The student observes while the nutritionist takes the patient's food history; then discusses with the nutritionist the dietary measures indicated. He learns to check the adequacy of a diet by determining daily consumption of milk, other protein foods, green and yellow vegetables, citrus fruits, breads and cereals, and fats.

The obstetrician and nutritionist hold weekly conferences with groups of medical students following consultations with the patients. Discussions center around pertinent points from the obstetrical and nutritional histories. Findings such as: overweight, underweight, anemia, edema and nausea are interpreted in the total framework of nutritional needs. Typical queries are: 1) What is an adequate diet during pregnancy? 2) What effect will an inadequate maternal diet have on the fetus? 3) How can you motivate a mother to improve food habits? 4) Why isn't a calcium supplement a dietary replacement for milk? 5) If the mother dislikes drinking milk, how may enough milk be included in the diet? 6) If she gains weight too rapidly, what suggestions can be made to help control her weight? 7) If she is edematous, what dietary recommendations are advisable to lower sodium intake? 8) How can the reason for a low-sodium diet be explained to her? 9) If the income is low, what food buying helps can be made? These questions indicate practical problems confronting a medical student as he plans optimum prenatal care for his patient.

An important aspect of prenatal care is supervision of the patient's diet. The nutritionist is available for consultation with the student on prenatal or postnatal dietary problems. She visits the families at home to offer guidance.

In the postnatal period the medical student again evaluates the patient's diet. He learns: that now there is often a normal reduction of appetite; that a patient may neglect her own food because she focuses on the care of her new baby; that she often reverts to poor food habits and may select foods inadequate in calcium, protein and ascorbic acid. She needs help in making food choices to replenish her body stores and maintain optimum health.

Infant feeding is brought sharply to the medical student's attention as he notes the baby's growth and development. The infant is examined by staff pediatrician and student. The formula and feeding schedule are evaluated and the mother is advised about the addition of orange juice, cod liver oil or vitamin concentrate and solid foods.

Problems presented to the medical student include: when and how to wean the baby; overweight and underweight children; finicky eaters. Nutritional needs of older children enter the picture as a student completes his physical examinations. Weekly conferences with a psychiatrist help the student to understand nutritional problems having an emotional basis, and the contributing factors of family interrelationships.

This productive learning experience gives the student an opportunity to work with realistic problems of adequate nutrition in limited income groups. As a vital contribution to the education of physicians it gives not only a theoretical understanding of nutrition but a practical experience in translating this knowledge to the patient.

A SCHOOL-COMMUNITY HEALTH COUNCIL IN ACTION

By Arthur R. Lehne, Director Bureau of Educational Expenditures, Chicago Board of Education, formerly Principal John Ericsson Elementary School

In the mosaic of communities that forms the city of Chicago, nutritional and educational problems vary significantly from one community to another. The local, grass roots approach can play an integral and crucial role.

Protecting life and health is a responsibility assumed for the child by family, doctor, civic and governmental agencies. The school can and should play an important role in this concern.

When a child has coke and sweet rolls for breakfast, when he may use lunch money for candy instead of milk and a balanced lunch, the need for a coordinated nutritional program spearheaded by the school becomes evident. Classroom instruction is not enough. A multiple attack on ignorance in the field of health is essential. A school-community health council may be the basis of coordinated health education.

Let us examine how a health council operates. It is initiated on the basis of a problem or a perception of a situation in the health and welfare of the child and family unit that needs improvement. It must reach out of the school into the home to be effective.

The John Ericsson Elementary School Health Council was formed on the basis of such a need. Like other

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—that ghee, a major food in Asia, similar to butter oil in composition but different in flavor and texture, was made here for the first time in 1956 from 2,500,000 pounds of Grade A surplus butter and sold to Pakistan?

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—that heredity determines the minimum and maximum levels of body weight and influences the ability of the individual to maintain weight at the desired level?

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—that it is possible that mongolism may result from inadequate transfer of vitamin A and other fat-soluble vitamins from the mother to the unborn child, research under the direction of Dr. Albert Sobel in New York now indicates?

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—that weight watchers can enjoy the nutritional goodness of ice cream, keeping in mind that calories range from only 135 in a medium size restaurant dip to 200 in a generous home-size portion; and that "toppings and unders" add calories?

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—that the casein and lactose of milk are used to make industrial, biological and pharmaceutical products; lactose in penicillin and other important drugs, casein in adhesives, plastics and paints?

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—that cheese has been a favored gift to presidents since farmers of the Berkshire mountains expressed their admiration for President Jefferson by presenting him with a cheese that weighed 1,235 pounds?

THINGS YOU'LL LIKE TO READ

Essentials of an Adequate Diet.—Edited by L. Page and E. F. Phipard. ARS-62-4. U. S. Dept. of Agri. Washington, D. C. 1956.

Source material for those concerned with basic food selection principles. A daily food plan stresses four food groups: milk, meat, vegetable-fruits, and bread-cereals. Charts and graphs indicate nutrients supplied by foods from each group. The plan allows flexible food choices with a reasonable assurance of selecting a good diet.

Health Supervision of Young Children.—Committee on Child Health, American Public Health Assoc., New York. 1955.

A guide for physicians, nurses and child health supervisors. Part I tells what health supervision is, wherever it is carried on. Part II shows how the Child Health Conference carries out good health supervision. Space is devoted to the psychological aspects of child health without negating the importance of continued supervision of physical health.

A SCHOOL-COMMUNITY HEALTH COUNCIL IN ACTION

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schools in Chicago, prospering under efficient centralized leadership, the school provided health instruction. To effectively use this instruction, all resources must be drawn upon by the school to fit the responsibilities of education in a given community. A successful program in a silk stocking community guarantees nothing in a blue shirt area. The resources of a central office can aid a health council formed by a neighborhood doctor, dentist, school principal, social workers, teachers, custodians and parents to develop a program needed in their community.

What has the Ericsson Health Council accomplished? By an intensive community study of patterns of living, sociological changes, the impact of rapid in-and-out migration and changes in the community population, the council succeeded in bringing facts into the open where challenges could be met. It continues to serve by gathering health data for the school and by keeping the community informed of what the school is doing. This is an essential and on-going process.

Organizations grow as they are able to resolve problems. An early problem facing the school was pediculosis. The problem was brought out into the open and the concern for loss of family status diminished. Then effective methods of control and treatment were passed on to parents and the children through consultation.

Milk consumption in the school lunch program and in the home increased as a result of nutritional studies in the classroom. Daily diet analysis, milk posters made and displayed in the classrooms, and controlled animal feeding experiments conducted in the classroom followed a program developed by the health council. New textbooks, reference materials, films, and charts were procured to help the program.

Since the Ericsson School is located in a section of Chicago where incidence of polio and tuberculosis is close to the highest in the city, polio vaccinations were carried out on a far reaching basis. The council stimulated the community to seek and accept one of the first extensive TB testing programs for school children. The machinery of the council provided rapid follow up for all suspected cases of TB uncovered by the testing program.

Parent meetings kept the community informed of the school health program. Newsletters strengthened school-community ties. An expanded home visiting schedule of the school nurse and principal met the needs of parents unable or unwilling to come to school. Resources of social and health agencies were used for medical and dental care of indigent children, helping to upgrade community health standards.

In the year and a half the health council has been in operation it has played a productive role; but for a community in transition the great challenge is yet to come. Here is an organization, as part of the school and community, that is mature and ready to meet the challenge.